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Q&A

Why "Smart" Funds Can Underperform the Market

By *Crystal Kim*

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What if much of the academic research driving investment strategies was faulty—if not outright wrong? It could mean that many financial products are based on false premises, says Campbell "Cam" Harvey, a finance professor at the Fuqua School of Business at Duke University, who dismisses much financial research as deeply flawed.

According to Harvey, 59, many of the more than 9,000 open-end mutual funds, 2,000-plus exchange-traded funds, and other retail investment vehicles could be based on flawed research. And it's not just the academics—results from asset-management firms' in-house research are also questionable. Not all of them are problematic, but the sheer number of products out there means that many of them are duds.

In a paper published in 2016, Harvey and Texas A&M's Yan Liu concluded that over half of all empirical research likely produced false results. Some researchers see patterns where there are none. Others fudge the results, also known as p-hacking.

"Junior researchers often produce the results they think the senior researchers want," says Harvey, and the senior researchers are none the wiser. Added pressure from academic journals that want to see and publish positive results doesn't help.

Investment banks then come in to package and sell new products based on this research to investors. A whole swath of so-called smart-beta ETFs that track rules-based indexes premised on academic research into factors—such as cheaper stocks versus expensive stocks, small-cap stocks versus large-cap stocks—might not be so smart after all. Such funds aim to deliver market-beating results.

Active managers with remarkable track records may not be able to replicate their past performance, says Harvey. Most investors know that past performance does not guarantee future returns, but those flocking to funds that have a strong record, expecting them to continue to do well, are no better than scientists who find patterns in data where there are none.

MANAGER'S BIO



Cam Harvey ILLUSTRATION: RESEARCH AFFILIATES

Name: Campbell Harvey

Age: 59

Title: Finance professor at the Fuqua School of Business, Duke University; partner and senior advisor, Research Affiliates

Education: M.S. in economics and political science, Trinity College; M.B.A., York University

Hobbies: Keyboardist

By asking the right questions about an experiment's design, what choices it was based on, and the consistency of its results across regions throughout history, says Harvey, one can better separate out real results from lucky ones.

Harvey recently joined Research Affiliates, a pioneer in factor investing, as a partner and senior advisor. He will look for new ways to design indexes and, more importantly, influence new research.

Barrons.com spoke to Harvey about how researchers and investors make mistakes when evaluating data and how one can identify repeatable performance.

Barrons.com: *You've been very vocal about the fact that more than half of the academic research out there, as it relates to finance, is likely false.*

Campbell Harvey: Finance is not special. It has been known for 10 years that over half of the research in medicine is likely false. This is not just an issue with finance. It is about making a basic mistake in statistical analysis—thinking that you're testing something. We apply statistical tools and ignore the fact that after you try so many things, you will come across a result you think is true but could also be a result of luck.

Q: *Colleagues in your field must love that.*

A: It was not a popular position to take. In any scientific endeavor, popularity is unimportant. I made the case that a fundamental mistake was being made in regards to the application of statistical methods leading to many so-called discoveries. We are not the only field that has made this mistake, but we are late to realize it. Areas like genome-association studies figured this out 10 years ago. My research argues that under the standards of proper statistical analysis, over half of papers' findings are likely false.

Q: *What do you mean by "proper" statistical analysis?*

A: Proper analysis means you explicitly take into account the things that have been tried before you declare something to be a true finding.

Q: *Could you give me an example of how one makes mistakes?*

A: I got this example from a comic strip. Somebody says: I heard that jelly beans cause acne. So the scientists go do a test, where one sample of people has jelly beans and the other does not. Then the scientists check and find no significant difference. The idea that jelly beans cause acne is discarded. Then someone says: Maybe it's the color of the jelly beans that causes acne. So scientists test purple jelly beans, yellow jelly beans, and so on, and find no difference. Then they get to the green jelly bean and find a difference. Then you see newspaper headlines: "Scientists discover link between green jelly beans and acne!"

Q: *This reminds me of when people find the image of Jesus on toast.*

A: Right, because if you jam enough pieces of bread in a toaster, eventually Jesus is going to pop out. These things happen due to random chance, and it is a mistake and not a miracle—and the same goes for evaluating portfolio managers. Some of them will outperform purely by luck.

Investors and consultants place far too much weight on past performance. You can't assume that just because a manager has beaten the benchmark for 10 years in a row, he or she must be skilled. No, that's just not good enough. It doesn't matter if you are in the first quartile of performance or the fourth quartile of performance, the probability of being in the top quartile next period is the same for both the good and bad past performer. We saw this play out a few weeks ago in the context of The Wall Street Journal's exposé on the Morningstar star ratings.

Q: *Is that the same as p-hacking that we hear about with smart beta and back-testing?*

A: I want to distinguish between p-hacking and what we talked about earlier. We were discussing well-structured experiments that look at many things and people mistakenly finding one significant result that is not all that significant. That is just using improper statistical analysis. With p-hacking, someone would try many things, but only detail the one significant result—the green jelly bean—and forget about the others. Another way of p-hacking is throwing out some of the data results because you don't like them, so you choose the one that is most favorable for your test.

Q: *So how is one supposed to distinguish the truly skilled managers from the lucky ones?*

A: I have six separate research initiatives with the common theme of separating luck from skill. The first initiative is the simplest. It simply raises the threshold for declaring a discovery—or taking something to market. Another initiative focuses on how to deal with noise in returns. I took all of the return data for every single manager and created a new set of data stripped of their average returns. So if I think a manager averages a 10% annual return, I subtract 10% every single year. Basically, I created a universe of managers who have no skill.

Q: *Smart-beta investors seem to make all sorts of mistakes.*

A: People don't like when an asset class's downside seems bigger than the upside. Prices are going to be cheap, and expected return is high. So they ignore that. Others crowd into factors such as low volatility—everybody's piled into that. Some investors don't invest in a factor because they don't think it is one, but it turns out to be one.

Q: *To be fair, it's hard to choose. And how many smart-beta funds are getting it right anyway?*

A: Some of these new smart-beta funds have been fit to a back test. So if it is 20 things that were tried and one happened to work, do I have any confidence in that? We're talking academic versions of factor investing, not the traded versions. Bottom line: There are only a small number of risk factors. That is an important conclusion, because there are a number of so-called smart betas out there. Based on my research, the list should be smaller. I am also looking at the individual risk factors, though I am still in the process of collecting the data. I'm hesitant to talk about it, because it is just an example of application. I have a program running 18,000 factors, and it is a little frustrating because it takes a lot of time.

Q: *There are 18,000 factors?*

A: Yes, but not all of them are true factors. So there is how much debt a company owes this year, next year, up to five years ahead. Well, suppose we identify the companies that have a low amount of debt owed in the fourth year versus companies that have a high amount of debt. So that factor doesn't make any sense, right? Why would you look at the fourth year? But it might work purely by chance.

Another way to deal with this problem: You inject your prior beliefs of ability of the smart-beta product. Putting an exchange-traded fund together around the fourth year of debt repayment does not have a plausible story. I don't care how good the back test looks, I'm skeptical. You need to have a solid economic foundation, and without that, the hurdle you need to exceed should be very, very high. We put a punitive penalty on any product that doesn't have a solid economic foundation.

Q: *Yet those products appear to be proliferating.*

A: Unfortunately, that is true. Investors need to understand the product. I am not saying every new product is a problem. However, it is all about incentives. Many investment banks offer hundreds of smart-beta products. They collect a fixed fee no matter what the performance is. Surely, they know that many or maybe most of the products will disappoint investors.

Asset-management firms do have some skin in the game. There are reputations to protect. However, given a company may be offering hundreds of products, there is some cover in numbers. That is, there are some investors who are satisfied, and they effectively cloak the complaints of others who feel let down. The problems I describe are less prevalent when performance fees are involved. If you put a false product on the market, you will not get a performance fee.

Q: *Thank you, Cam.*

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